

I. Exponential, Linear and Quadratic Functions

Identify if the function is exponential, linear, or quadratic.

1) $f(x) = 5.6^{x-4} - 8$	2) $f(x) = 2x^2 + 3$
3) $f(x) = \frac{1}{2}x + 4.3$	4) $f(x) = x(x + 3) - 2$

II. Transformation Properties of Exponential Functions

- 5) Write the function that represents the transformation of f reflected over the y-axis, vertically compressed by a factor of $\frac{1}{3}$ units, and shifted 7 units to the left.

$$f(x) = (9)^x$$

- 6) Describe the transformation from $f(x)$ to $g(x)$.

$$f(x) = (3)^x \text{ and } g(x) = -3(3)^{x-2} - 6$$

- 7) Write the function that represents the transformation of f vertically compressed by a factor of $\frac{1}{2}$ units, shifted 2 units to the right, and shifted 4 units down.

$$f(x) = \left(\frac{1}{6}\right)^x$$

III. Compound Interest

What is the Compound Interest Formula? _____

8) One hundred dollars is invested at 2% interest compounded quarterly. Determine how much the investment is worth after 3 year. **Round to the nearest hundredth.**

9) Three hundred dollars is invested at 4% interest compounded daily. Determine how much the investment is worth after 2 years. **Round to the nearest hundredth.**

10) One hundred and fifty thousand dollars is invested at 9.2% interest compounded annually. Determine how much the investment is worth after 11 years. **Round to the nearest hundredth.**

11) Eleven dollars is invested at 13% interest compounded annually. Determine how much the investment is worth after 35 years. **Round to the nearest hundredth.**

12) How much will a \$597 investment be worth after 90 years if it is invested at 6.8% interest compounded annually? **Round to the nearest hundredth.**

IV. Logarithmic and Exponential Functions

Rewrite each equation in exponential form.

13) $\log_5 125 = 3$	14) $\log_{343} 7 = \frac{1}{3}$
15) $\log_6 \frac{1}{216} = -3$	16) $\log_2 64 = 6$

Rewrite each equation in logarithmic form.

17) $289^{\frac{1}{2}} = 17$	18) $9^2 = 81$
19) $4^{-2} = \frac{1}{16}$	20) $\left(\frac{1}{5}\right)^3 = \frac{1}{125}$

V. Properties of Logarithms

Express the logarithm in expanded form.

21) $\log_6 A^4 B^{\frac{1}{6}}$	22) $\log_6 \left(\frac{\sqrt{A^6}}{B} \right)^5 \cdot C^3$
----------------------------------	--

Express as a single logarithm.

23) $\log_2 x + \frac{1}{2} \log_2 y + 3 \log_2 z$	24) $\log_7 x - 2 \log_7 y - 17 \log_7 z$
--	---

Simplify.

25) $11^{\log_{11} 121}$	26) $7^{\log_7 16}$	27) $a^{\log_a 74}$
--------------------------	---------------------	---------------------

VI. Change of Base Formula

Solve for x. Round to the nearest hundredth.

28) $x = \log_2 63$	29) $x = \log_{2.1} 19$	30) $x = \log_3 61$
---------------------	-------------------------	---------------------